roads were superior in quality to those in Galicia and the network was denser. The total length of highways in Ukraine was approximately 24 000 km. There was little motor traffic: there was more in Carpatho-Ukraine but in 1937 there were in Ukraine only 13 cars per 10 000 inhabitants (in France 492, England 431, Germany 183).

4. Inland Waterways

As regards length and the area of their basins, the rivers of Ukraine are among the largest in Europe, but their navigability suffers from frequent windings, shallows and rapids. In summer variations in the water level are a great disadvantage, while in winter the rivers are frozen for 3—4 months. As the rivers melt from the mouth, there is no danger from ice-floes. 90 % of the rivers flow into the Black Sea, some into the Vistula and two insignificant streams into the Caspian Sea. The Dnipro and some of its tributaries are navigable as are also 4 other rivers:

The Dnipro is 2 248 km long and drains an area of 518 500 square kilometers, so that it is the third biggest river in Europe. By the dam it has been made navigable for 1 250 kilometers. Its tributaries, the Pripyat, the Desna and the Seym are also navigable. The total length of the Dnipro navigable network is 3250 kilometers, while 4 300 km of waterways can be used for shipping and floating rafts, i. e. more than $^3/_5$ of the total waterways in Ukraine (6 200 km).

Freight traffic on the Dnipro did not reach the pre-war level of 2.7 million t till 1932 and had increased by 1935 to 3.9 million t. Passenger traffic doubled in those years and amounted to 4.8 millions. $^1/_3$ of the goods transported was wood, and $^1/_4$ mineral building materials, more than $^1/_8$ grain, while coal, ore and metal were poorly represented. The important harbor towns on the Dnipro are Kyiv, Dnipropetrivske, Nishnodniprovske and Kherson.

The Dnister (1 372 km long, draining an area of 77 000 sq. km) has been prevented by geological and political conditions from developing any great shipping. Upper reaches and lower belong to two absolutely different political systems. Before the

505 First World War grain, wood, gypsum and building stone (250 000 t) were transported on the river, while later only wood was shipped on the upper reaches.

133 487 505 The Kuban (800 km long, with a basin of about 60 000 sq.km) has its source in Caucasian glaciers and is navigable all the year round for a stretch of 350 km. It is true that gravel and sandbanks make shipping difficult. In 1935 230 000 t of freight were shipped down the river. The Boh (709 km long, with a basin of 64 000 sq.km) has little water and many rapids. 100 km are navigable, but traffic is negligible. Of the Don (1984 km long, with a basin of 425 000 sq.km) which is the fourth biggest river in Europe, only the navigable lower reaches belong to Ukraine. Goods transported are above all grain, coal, salt- 254 000 t in 1935. Conveyance of passengers is negligible.

Its right tributary, the Donets (1 020 km, with a basin of 99 000 km) crosses the Donets Basin and is navigable for a stretch of 350 km. The Buh, Vepr and Syan, Prut, Seret and Tysa are only important for floating down logs.

503 The condition of the Ukrainian waterways is not imposing, though Ukraine comes fourth in Europe with its 6 200 km of navigable rivers. There is no thorough system of regulating the rivers or building canals to connect them, though this has been planned for decades. There are only 200 km of canals. The following artificial systems of communication by water have been planned:

a) reconstruction of the Viking way and the linking up of Leningrad, Kyiv and Kherson (2 canals each 30 km long);

b) a connection between Riga and Kherson, in place of the antiquated route via the Beresina which has existed since 1805;

c) development of the now inadequate route (Oginski-Canal etc. 343 km) between the Dnipro or the Pripyat, Pina and Jasiolda and — via the Shara — the Memel linking Kherson with Königsberg;

d) (Royal canal etc. 233 km) between the Pina and — via the Mukhovets — the Buh and the Vistula, connecting Kherson with Danzig;

e) the construction of a canal from the Dnipro, via the Desna and the Bolva (30 km) to the Zizdra and Oka, and so to Moscow and the Volga; 503

f) a canal between the Dnipro and the Donets, via Samara and Vovcha;

g) a connection between Danzig and the Black Sea via the Vistula and the Syan, linking up with the Dnister and perhaps the Prut;

h) a canal between the Caspian and the Black Sea, via the valley of the Manych, a tributary of the Don and the Sea of Oziv.

5. Sea Traffic

The position of Ukraine like a fan, spreading out from the Black Sea and the Sea of Oziv is particularly favorable for the export of mass products, while the coast of the Black Sea has not many natural harbors. Ports can, however, be built in the limans of the river-mouths. The coast of the Sea of Oziv is definitely unfavorable. It is only recently that harbor equipment has been mechanised and the harbors themselves improved. 133 504

Odessa is the third largest harbor in Russia, coming after Riga and Leningrad and lying in a bay 30 km north-east of the Dnister liman which is too shallow for shipping. The harbor is well constructed and freezes only for 2—3 weeks, which is easy to manage. Odessa is the only port in Ukraine where exports practically balance imports (in 1913: 2113 and 2061 t. average for 1930—1934: 1234 and 1550 thousand t). These figures refer to the total turn-over, in which figures for coastal trade exceed those for actual exports. In the former the import figures were higher and in the latter the export figures. 505

In Odessa grain forms the biggest part of the freight which also includes sugar, wood, methylated spirits and oil-cake. The imports are groceries, fruit, textile raw materials, chemicals etc. The town had become an important financial center with a stock exchange.

Mykolaiv on the liman of the Boh has a well built harbor with good connections with the hinterland. Grain and ore from 504

505 ●

Trade in merchandise in the Ukrainian harbors was always characterized by the predominance of coastal traffic (cabotage) and inland transportation (more than 70 % of all shipments) over foreign trade (not quite 30 %) and the latter by the excess of exports over imports. Turnovers in Ukrainian harbors increased with swelling exports and reached a peak in the years 1909—1911, but had a disastrous setback after World War I and even under the second Five Year Plan attained only 15 million t, i. e. less than the 17 million t of pre-war years. Foreign trade decreased more than the entire turnover, imports more than exports, so that it was only the excess of the latter that increased.

The following contributed more than 1 % of the entire merchandise passing through the harbors of the USSR alone: in 1913, first of all grain (43.6 %), then a long way behind, coal (20.3 %), then ores (7.7 %), sugar (2.6 %), metals and metal products (2.6 %), salt (1.8 %), building materials (1.7 %), petroleum (products) (1.1 %), fruit (1.1 %), In 1934 hard coal came first (26.9 %), then petroleum (24.8 %) and grain only third (13.4 %), then ores (7.1 %), metals and metal products (6.6 %), building wood (4.4 %), salt (2.4 %), building materials (2.2 %), sugar (1.3 %). A comparison of these statistics shows the decline in the export of grain and sugar.

While the passenger traffic greatly increased after the First World War, there was practically none with foreign countries, but only between Soviet ports. In 1935, 2.8 million people were transported between the Ukrainian harbors on the Black Sea and the Sea of Oziv and in 1934 1.8 million between ports of the USSR alone, 29.6 % being contributed by Kherson, 28.9 % by Odessa and 18 % by Hola Prystan, otherwise an insignificant port.

their career and the assurance of a good income for the meagre appointments as an official. It is sufficient just to glance at the statistics of the Russian Empire in order to realize what a gigantic increase in the development of civilization was reached by the effort of the Russian intellectuals and specialists. Public instruction had developed in these fifty years to an enormous extent, infant mortality had fallen by more than 60 per cent, epidemics had experienced a great fall, as also cattle diseases, and the yield of the land had increased in the southern regions by more than 30 per cent. The improvement of the different breeds of horses and cattle was already evident on the eve of the Great War.

The backward country which Russia was supposed to be in the eyes of Westerners, including also the Ukraine, had in 1912 a big network of telephone lines in the country and especially in the region of Vinnitza, where the organization of the Zemstvos was especially active.

As to the river system, as we have already seen, it is very poor and is limited to four rivers, the Dnieper, the Dniester, the Boug, and the Donietz, of which the Dnieper alone is of any interest. The transport capacity of this one important river has been for ever spoiled by the rapids which make navigation impossible along a considerable distance. It is only after the building of the *Dnieprogues*, whose gigantic barrage had submerged the rapids along a distance of about one hundred kilometres, that an uninterrupted river route was established, linking the upper Dnieper with the Black Sea.

This river drains the greater part of the Ukraine and has left its mark upon the whole historic and economic evolution of the country.

Before the Great War the annual tonnage of transports

on this river was more than 80 per cent of the river tonnage of the whole country. The ports of the Dnieper had, before the Great War, 360 steamers and more than 1800 other boats. Timber, salt, and corn composed, and still composed to-day, the predominant part of the goods carried by the Dnieper.

The insufficient and incompetent management of the river ports and the small tonnage of the ships still do not allow one to-day to increase the river transport of the Ukraine to any noticeable extent.

On the other hand the geographical possibilities of sea transport are enormous. Excellent ports like Odessa and Nikolaiev, lying 600 kilometres from Constantinople and 1000 kilometres from Batoum, can assure the transport of export and import goods on a big scale and especially that of petrol from the Caucasus. Beside Odessa and Nikolaiev, the Ukraine still possesses other ports which are also favoured from a geographical and technical point of view, among them Marioupol, Berdiansk, and Kherson and some smaller ports of local interest.

We have noted that under normal conditions of economic exploitation the Ukraine, thanks to its agricultural and industrial potential, could be put on the level of the richest countries of the world. The continuation of the economic development of the Ukraine is conditioned by the existence of a stable outlet. If it is a question of a surplus of wheat, sugar, and other produce of the land, or of the products of industry, this surplus is to-day dependent on the consuming regions of the rest of Russia. The Ukraine, which consumes 85 per cent of its resources of energy and almost all its minerals in order to transform them locally into manufactured articles, is not only a source of raw materials, as is usually imagined.

9: Prothero G-4 (no date) 1920 RD1 Ukraine RD1

River System

The Ukraine as a whole consists of portions of the basins of the Rivers Dnieper (with its tributary the Pripet), Dniester, Bug, and Donets, the last named being the largest affluent of the Don. 133

The *Dnieper*, which rises in the Government of Smolensk, has a total length of about 1,410 miles, and drains an area of 202,140 square miles. It first touches Ukrainian territory at Loyev on the western border of Chernigov, and thence flows in a south-easterly direction to Yekaterinoslav, in a shifting channel which varies greatly in depth and breadth. At Yekaterinoslav the river turns south and then south-west, forming a succession of rapids, so that navigation in this part is only possible when the river is in flood. Artificial canals enable small vessels to proceed when there is low water in the channel. The Dnieper enters the Black Sea below the town of Kherson, by a *liman*, into which the Bug also discharges. 133 487 [502]

The chief tributaries of the Dnieper are: on the right bank, going from north to south, the Berezina, which runs through the Government of Minsk; the Pripet, with its many affluents, among them being the Styr and the Strumen, all of which overflow their banks and help to form the system of marshes which is more fully described in *Russian Poland*, No. 44 of this series (p. 15), and the Ingulets, which flows a little above Kherson into the Dnieper near its outlet to the Black Sea. 133

On the left bank the chief tributaries are the Sosh; the Desna, which flows through Chernigov into the Dnieper just above Kiev; and the Samara, which joins the river at Yekaterinoslav.

There is a regular service of passenger steamers on the Dnieper both above and below the rapids, and also along the Pripet as far as Pinsk. [505]

The *Dniester* rises in Austrian Galicia, and only the last 515 miles of its course, with a drainage area of 16,500 square miles, belong to Russian territory. It reaches the Ukraine provinces near Kamenets Podolsk,

9: Prothero G-4 (no date) 1920 RD: Ukraine RD1

the channel was made early in the nineteenth century, but proved abortive. Proposals to canalize this section have so far had no result. From Loev to Yekaterinoslav, above the rapids, there is passenger traffic, some goods traffic, and a vast traffic in rafted timber. Though some of the timber is floated down the rapids to Kherson, most is brought ashore at Yekaterinoslav, which receives annually some 160,000 tons of building timber, besides other classes of wood. Below the rapids the river is navigable from Alexandrovsk to the mouth.

Some of the tributaries of the Dnieper are navigable for some distance from their junction with the main stream—the Pripet (Pripyat) for a short stretch; the Desna, which joins the Dnieper at Kiev, as far as the boundary of the Ukraine near Novgorod Sjeversk; the Psiol to a point west of Poltava; the Ingulets for about 25 miles.

The vessels employed in the Dnieper basin are of small tonnage (maximum about 300 tons), and the steamers are almost all either for passenger traffic or for towing the barges in which goods traffic is mainly carried. The maximum loaded depth below the rapids is 12 ft. 10 in.; above the rapids it is considerably less.

The *Dniester* is navigable for the whole of its length in the Ukraine from the Galician frontier to the mouth at Akkerman. There are many dangerous rapids, and the vessels used on the river are small, with a maximum draught of 3 ft. 9 in. The lagoon at the river mouth is so shallow that most vessels discharge at Varnitsa near Bender for carriage by rail to Odessa.

The *Southern Bug* is navigable from Vosnesensk to the mouth at Nikolaev. There is passenger traffic, and the size and draught of vessels is the same as on the Dnieper, below the rapids.

There is some navigation on the river *Styr* in Volhynia from Lutsk to Borobaza, also on the *Western Bug* from the Galician frontier to the point where it leaves the Ukraine, but in both cases only for rafts and vessels of very light draught.

The navigable length of the principal rivers is as follows: 487

	For Shipping. Miles.	For Rafting only. Miles.
Dnieper . .	1,250	136
Desna . .	537	166
Dniester . .	521	35

All the above-mentioned waterways suffer in common from four serious defects. (1) They are frozen for a considerable period of the year. In the basin of the Dnieper traffic was only possible in the first ten years of this century for an average of 230 days above the rapids and 250 below. Other rivers are in a similar case. (2) The volume of water falls rapidly in summer, and in dry seasons lack of water impedes navigation seriously. (3) Wholesale cutting down of the forests on the banks has led to alteration of the beds of the rivers and the splitting up of the channels. (4) Works for the improvement of navigation scarcely exist, not even the most urgent having been undertaken. 487 502

The principal cargoes carried are breadstuffs, wood, and coal. Cereals are embarked in great quantities on the lower Dnieper and Southern Bug for shipment abroad from Kherson and Nikolaev. The upper Dnieper and the Dniester carry timber. 505 ● 439

Navigable canals do not exist in the Ukraine. Should the scheme for a Dvina-Dnieper canal materialize, it would have a noticeable commercial effect upon the towns of Kiev, Yekaterinoslav, Alexandrovsk, and Kherson. 503

(c) *Railways*

Railway System.—There are in the Ukraine three great railway centres, viz. Kiev, Kharkov, and Yekaterinoslav. 496

1. From Kiev a line runs in a westerly direction to Sarny and Kovel, continuing thence to Cholm and Warsaw.

A second line goes in a north-easterly direction to Bakhmach, thence *via* Kursk and Orel to Moscow.

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504 from its mouth. There are two entrances from the sea, the Rvach and Zbarev channels, the former being 22 ft. deep, the latter only 10 ft. There are three loading berths at a quay, respectively 420, 125, and 425 ft. long, but vessels mostly load in the stream from lighters by means of floating cranes, of which there are 22, or by using their own winches. Vessels are allowed to load up to 23 ft. owing to a recent improvement in the channel. A new quay to accommodate 18 steamers is under construction.

Berdyansk roads are protected by a long semi-circular sand-spit from all winds except the south-west. There is 14–16 ft. of water in the roads. The harbour is protected from all winds by a breakwater 700 yds. in length, parallel with and half a mile distant from the shore line in front of the town. A dredged channel, 1½ miles in length and 10½ ft. deep, leads up to the western end of the breakwater. Quay space is at present deficient, but a first-class port is projected and partially under construction. The harbour is being dredged to increase its general depth to 20 ft.

Mariupol harbour consists of an area on the open foreshore enclosed by two moles. The entrance channel is dredged to a depth of 24 ft., and the depth in the anchorage inside the moles is 22–26 ft. Within the harbour, 440 yds. from the shore line and parallel with it, is a breakwater 500 yds. long. The inner harbour inside this breakwater is reserved for vessels loading coal Against the quays, where rails run alongside, there is a minimum depth of 12 ft. and a maximum of 24 ft. There are two hydraulic elevators for loading coal, but much coal and all grain is loaded by hand, and mechanical appliances are greatly needed. Mariupol is considered a harbour of first-class importance, and extensive improvements of all kinds are projected.

●505 431 *Nature and Volume of Trade.*—Odessa, Nikolaev, and Kherson export cereals and other agricultural products; Nikolaev also exports great quantities of iron-ore and Kherson timber. Many vessels arrive in ballast

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to carry these goods. The imports consist of machinery, manufactured goods, colonial and tropical products, and chemicals; Odessa also imports coal from the Donets region, which is shipped at Mariupol or Taganrog.

The export trade of Berdyansk is chiefly coal, iron-ore, and grain. Mariupol principally exports Donets coal. The imports of both places are general, but a large proportion consists of chemicals and particular minerals required in the iron and steel industry in the Government of Yekaterinoslav.

The number and tonnage of the vessels entering the above-mentioned ports in 1910, and the amounts of the exports and imports, are shown in the following table:

	Total vessels entered.	*Tonnage.*	*British vessels entered.*	*Tonnage.*	*Imports (tons).*	*Exports (tons).*
Odessa	848	1,596,217	174	388,136	566,743	1,736,029
Nikolaev	544	1,126,441	315	676,834	178,790	2,070,419
Kherson	152	330,260	131	288,789	104,693	844,919
Berdyansk	180	269,365	38	65,492	28,693	416,451
Mariupol	231	394,451	67	119,242	266,693	1,587,161
				Total	1,145,612	6,654,979

The respective values of the exports and imports are more difficult to ascertain, but the difference in value is certainly not so great as that in weight. For some years before the war, the value of the exports of the whole of Russia exceeded that of her imports by about 40 per cent., and the proportion for the Ukraine ports is probably about the same.

Adequacy to Economic Needs; Possibilities of Development.—The Ukraine Black Sea ports would appear, on the whole, to be equal to the demands put upon them; in fact, there is severe competition between Odessa and Nikolaev. The recent improvements at Nikolaev have inspired the Odessa authorities to apply for powers to carry out great extensions, but so far these have not been granted, as the central authorities held that there was no prospect of a good return on the capital that would be required.

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504 The port of Kherson is handicapped by the expense and difficulty of keeping open a good channel from the mouth of the Dnieper to the town.

The two Azov ports are in a somewhat congested state, and need additional quay space, loading appliances, and powerful ice-breakers. Their importance for the export of coal and iron-ore as well as of grain is recognized, and it is understood that large sums would be forthcoming to effect improvements.

Two other ports in the Ukraine which are very suitable for development are Ochakov, on the north bank of the Dnieper–Bug estuary, and Shadovsk, which is situated in a land-locked bight a few miles west of the isthmus of Perekop. At present neither is touched by any railway, and they offer no facilities to shipping; but they are so favourably situated that their development at reasonable cost would probably be more beneficial to the Ukraine than expensive improvements at Odessa and Kherson.

(*b*) *Shipping Lines*

505 Before the war Odessa was visited by regular lines of steamers with passenger services, and the other ports by 'tramps' exclusively.

There are several Russian-owned lines. The Russian Volunteer Fleet Association, a subsidized undertaking, made regular voyages between Odessa and Vladivostok with a view to developing trade between Russia and her possessions on the Pacific. This line, which has a fleet of 70 vessels, with a tonnage of about 150,000, is not a commercial success.

The Russian Steam Navigation and Trading Co. provided passenger services in the Black and Azov Seas, and had other lines to Mediterranean ports. Its fleet consisted of 65 vessels, with a tonnage of 150,000.

The Russian Transport and Insurance Co. had a fleet of ten vessels, mostly tramps, with a tonnage of 12,000.

Peter Regier & Son had nine tramp steamers, of a total tonnage of 22,000.

The Russian Danube Steam Navigation Co. traded from Odessa to Danube river ports. It had a fleet of eleven vessels, with a tonnage of 9,000.

The following foreign lines had regular sailings to Odessa: Thos. Wilson, Sons & Co., thrice weekly, from Hull; J. R. Ellerman, Ltd., fortnightly, from Liverpool; James Moss & Co., every four weeks, from Liverpool; the Messageries Maritimes, fortnightly, from Marseilles; and the Deutsche Levante Linie, monthly, from Genoa.

Tramp steamers of many nationalities are attracted in great numbers to Ukraine ports in the autumn for the shipment of the cereal crop, and there is seldom any lack of cargo space.

The foreign lines with regular services appear capable of meeting the normal demand on their cargo space. The Russian lines require Government support, as shipping under the Russian flag is not as a rule commercially successful.

(c) *Telegraphic Communication*

Telegraphic communication with foreign countries is dependent mainly on cable lines not situated in the Ukraine, which has only one cable, from Odessa to Constantinople, the joint property of the Indo-European Telegraph Co. and the Eastern Telegraph Co. Telegrams for the East are sent *via* the Kertch station of the Indo-European Telegraph Co.; those for northern Europe or America, *via* Petrograd and thence by various cable lines.

(B) INDUSTRY

(1) Labour

(a) *Supply of Labour; Emigration and Immigration*

The line of cleavage between agricultural and other labour is not so sharp in the Ukraine as in most other communities. The claims of agriculture are the greater by far, but the increase in the number of landless peasants who find it difficult to live in the country

101 swamps of Polesia. Faggot and fascine paths lead
133 you from village to village, from settlement to settlement. If you visit this swamp land which extends almost to the central Russian plain and is about at large as Hungary including Carpatho-Ukraine, in spring during the time of thaws or during the floods of early summer, people will row you in a boat to their neighbor's. For at these times the rivers creeping in countless bends through lakes, ponds and tributaries of this country, which is only 170 meters above sea level, flood their banks for many weeks, even months. This landscape is unutterably sad, and, it has deprived of laughter the few people it scantily nourishes with fish, potatoes and oats. Polesia is a land of spooks
[136] without equal, where, across the bog through which
[137] elk and bison, sure-footed, make their way, there rises the "pillared hall of centuries-old oaks, lindens, aspens, ash trees, firs, spruces and pines." /19/ The sun rarely shines into this twilight where at night there are mysterious will-o'-the-wisps in this world of mold. Deathly silence prevails in this accursed land which even the birds avoid. You are standing on the border of the Soviet Union.

133 Descending the navigable Pripyat, and traveling eastward halfway to the central Russian plain, you reach, friend, the Dniepr, which comes from the north. You have come to the sacred river of the Ukrainians. They chant its praises in countless songs. This third largest river of Europe flows 2100 kilometers until, exhausted, it empties into the Black Sea. If it happens to be flood time, you will not be able to see from one bank to the other, the river rises to such an extent. It gets to be six, eight, even ten kilometers wide. Herodotus already compared it with the Nile.

● 505 If you now sail south[1] on a Dniepr steamer you will reach Kiyev. Do not be surprised at the numerous vessels which you meet on the river, for

[1] [From the confluence of the Dniepr and the Pripyat - Analyst]

505 the mercantile fleet which it carried was, even long before the war, as large as the total mercantile tonnage of the Austro-Hungarian fleet.
346 Even from far off you will see on the hills of the city lying on the right bank the strange cupolas of the Byzantine churches and monasteries. Kiyev was formerly the "Rome of the East", and even today it is the "mother of all Russian cities". Hundreds of thousands of devout pilgrims
788 annually visited the famous cave monastery of Pecherska Lavra, the cathedral of St. Sophia, the Golden Gate and other sacred spots.[1]

133 The churning steamer which you again board in the sprawling, pounding and shrieking harbor section[1] will take you farther downstream. On the west bank the high plateau of the Dniepr Plain rises steeply. If you should wander over this undulating hill country with its fields of wheat and sugar beets, you would see everywhere the traces of Ukraine's past: mighty grave mounds of nomad chieftains, and embankments with which in early times the Ukrainian people protected themselves against Asiatic brigands. /20/ To the left of the stream, in the east, you see nothing but wild thickets of reeds, dense, impenetrable green meadows behind which the Dniepr Plain is hidden.
361 You would find villages there[2] which have as many inhabitants as a medium-sized city and which equal a metropolis in surface area. However, they have remained villages in which peasants live on their homesteads; it is almost a day's journey to their fields. Khar'kov, a small Cossack hamlet in the seventeenth century, and today the second largest city of the Ukraine, is situated on the eastern edge of this plain.

133 In Dniepropetrovsk where formerly the rapids began, you turn eastward, friend, and now reach the steppes. The earth which is swept bare by the eternal east wind and by the dust storms, is completely naked as soon as you ascend the Donets

1 [i.e. In Kiev — Analyst]
2 [i.e. In the Dniepr Plain — Analyst]

lateral connections are still wanting. Anyone wishing to go from west to east in the Ukraine is obliged to reckon with a circuitous route and a long period of travel. For instance, you travel 32 hours from the capital of Kiyev to Taganrog on the Sea of Azov which is 700 kilometers distant, even though you go forever over flat steppes; from Kiyev to Kherson 450 kilometers to the south you, travel 16 hours. (122) More-

122. Kubiyovich: Atlas, page 50.

over, the Ukrainian railway network is so wide-meshed that there are large districts which are 40 to 60 kilometers away from the railroad line, as on the lower Dnieper north of the Bug estuary and in the Kuban region. The most traveled stretch is the Moscow-Khar'kov-Donets Basin-Kuban line with more than 10 passenger trains a day. Between Kiyev and Odessa there are five to six passenger trains a day, as well as between Kiyev and Moscow. There is not a single serviceable cross connection except the line between the industrial regions of Krivoy Rog and Donets, which was built in 1884. Between two such important cities as Kiyev and Khar'kov there are only one or two passenger trains a day. Odessa can be reached from the Donets region only by a very roundabout way. Through the lonely reaches of the Western Soviet Ukraine only one or at best two passenger trains run daily. (123)

123. Kubiyovich: Atlas, page 49.

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/174/ The most important trade and communications route of the Ukraine until the pre-war period was the Dnieper. It and its tributaries take up 4300 kilometers of the total of 6000 kilometers of navigable rivers in the Ukraine. Shipping is not very important on the rest of the rivers, such

505 as the Dnester, Bug and Donets, because it is not regulated. The Donets has too little water to assume the importance it could have as the only river in the industrial area.

504 Odessa is the most important seaport of the Ukraine, and next in importance comes Novorossiysk on the Caucasian coast. Both of them turn over more than two million tons of goods annually. Next come Mykolayov at the mouth of the Bug and Maryupil on the Sea of Azov, with a turn-over of more than a million tons annually, as well as Kherson at the mouth of the Dneper and Theodosia in the Crimea with more than half a million tons each.(124)

124. Kubiyovich: Atlas, page 48.

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000 When workers are satisfied with their jobs and the general living conditions of their dwellings, they do not like to change. Constant change of a crew of workers of an enterprise is a definite sign that something is wrong, that the workers are not satisfied. For the employers it is no pleasure constantly to be obliged to train new
404 people and test their reliability. In the Ukraine workmen very often leave factories and pits in order to find employment in other enterprises. The official organ of heavy industry 'Za Industriyalizatsiiu' writes about this on December 15, 1936: "The fluctuation of workmen in the Donets Basin is enormous. It even exceeds that of former years. In eleven months of 1936, 231,000 new workmen moved to the coal pits, while 233,000 moved away; again in 1935, 210,000 came, 219,000 left. The crew changes all the time... People also leave the mines because of low wages. /173/ In pit number 18 many of the workers hired, earned only 100 to 200 rubels a month. Disorganization